Index of Exhibits

Exhibit 1 Financial Overview

	Qwest	SBC	Verizon	BellSouth	AT&T
Price (August 19, 2005)	$3.89	$24.14	$33.07	$26.96	$19.71
52-Week Range	$3-$5	$23-$27	$33-$42	$25-$29	$14-20
YTD Relative Performance	(13.0)%	(7.0)%	(19.0)%	(3.6)%	2.8%
Rating	O	O	M	M	M
Revenue ($ million)					
2004	$13,810	$52,526	$70,688	$27,962	$30,537
2005E	13,821	61,923	74,583	33,780	26,633
2006E	13,651	63,364	77,871	34,873	22,899
2007E	13,417	64,225	80,525	35,820	20,568
2008E	13,089	65,121	83,095	36,752	19,197
2009E	12,747	66,263	85,616	37,700	18,177
2010E	12,455	67,540	88,146	38,540	17,360
Five-Year CAGR: 2005E-10E	(2.1)%	1.8%	3.4%	2.7%	(8.2)%
EBITDA ($ million)					
2004	$3,595	$16,882	$27,620	$11,192	$7,005
Margin	26.0%	32.1%	39.1%	40.0%	22.9%
2005E	$4,027	$19,301	$28,281	$12,370	$5,842
Margin	29.1%	31.2%	37.9%	36.6%	21.9%
2006E	$4,287	$19,609	$29,347	$12,545	$4,017
Margin	31.4%	30.9%	37.7%	36.0%	17.5%
2007E	$4,193	$19,805	$30,339	$13,055	$3,369
Margin	31.2%	30.8%	37.7%	36.4%	16.4%
2008E	$4,025	$20,148	$31,197	$13,723	$3,168
Margin	30.8%	30.9%	37.5%	37.3%	16.5%
2009E	$3,843	$20,479	$32,078	$14,106	$3,016
Margin	30.2%	30.9%	37.5%	37.4%	16.6%
2010E	$3,701	$21,124	$33,172	$14,479	$2,852
Margin	29.7%	31.3%	37.6%	37.6%	16.4%
Five-Year CAGR: 2005E-10E	(1.7)	1.8	3.2	3.2	(13.4)
EPS ($)					
2004	$(0.56)	$1.47	$2.42	$1.83	$1.97
2005E	(0.27)	1.61	2.51	1.72	2.12
2006E	(0.01)	1.58	2.52	1.66	0.83
2007E	0.12	1.53	2.58	1.85	0.38
2008E	0.18	1.54	2.64	2.03	0.18
2009E	0.19	1.67	2.73	2.11	0.11
2010E	0.21	1.89	2.89	2.32	0.04
2004-05E Percentage Change	(52.1)%	9.7%	3.9%	(5.9)%	7.5%
Consensus					
– 2005E	$(0.32)	$1.56	$2.53	$1.74	$2.13
– 2006E	(0.20)	1.65	2.61	1.94	1.29
Market Capitalization ($ million)	$7,146	$79,759	$91,439	$49,391	$15,807
2005E Net Debt ($ million)	14,331	23,191	38,741	16,504	5,109
Enterprise Value ($ million)	$21,476	$102,950	$130,179	$65,895	$20,916
2005E EV/EBITDA	5.3x	5.3x	5.7x	5.3x	3.6x
2006E EV/EBITDA	5.0	5.3	5.6	5.3	5.2
2005E P/E	nm	15.0x	13.2x	15.7x	9.3x
2006E P/FE	nm	15.3	13.1	16.2	23.7

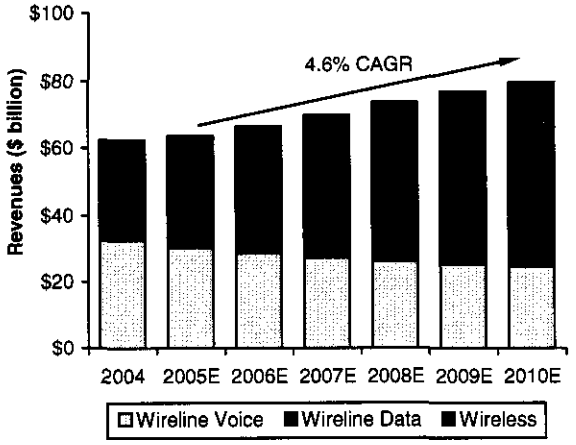
Source: Corporate reports and Bernstein estimates and analysis.

Significant Research Conclusions

Enterprise Is the Most Important Customer Segment for Industry Growth

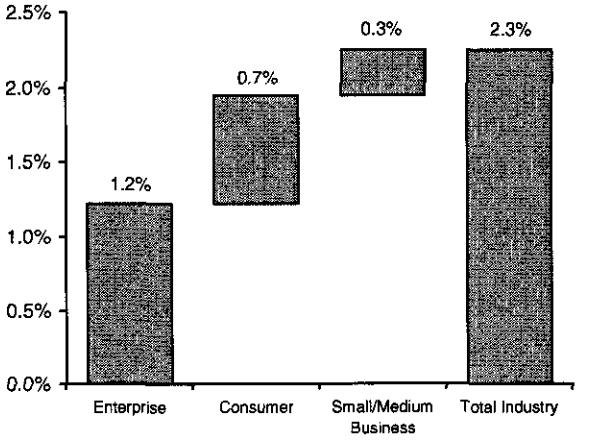
We size the market that supplies large corporations with telecommunications services at approximately $64 billion in annual revenues, and expect it to grow 4.6% per annum for the next five years (see Exhibit 2). To put those numbers in context: The enterprise segment accounts for only about one-quarter of U.S. telecommunications services total retail revenues — but is expected to drive more than one-half of the industry's expansion (see Exhibit 3). Underpinning the above-average growth is the segment's relative exposure to wireline data and wireless services. In addition, large enterprises often motivate service providers' innovations, reflecting their demand for advanced communications applications.

Exhibit 2 Enterprise Telecom Spending Forecast: 2004-10E



Source: Bernstein estimates and analysis.

Exhibit 3 Telecom Industry — Contribution to Total Retail Market Growth: 2005E-10E



Source: Bernstein estimates and analysis.

Framing the Third Bernstein Enterprise Telecom Decision-Maker Study

Large enterprises, roughly defined as the group of *Fortune* 1000 corporations, are generally the hardest customers to serve, because of their complex and varied requirements. Complicating matters, information about this segment is some of the most difficult to come by, as the few large providers that dominate the enterprise market closely guard their data. In response, we have repeatedly turned to primary market research during the past four years, as the source of proprietary insights into this market and the communications providers that service it.

Each year, we undertake a qualitative market research study composed of 25-30 hour-long, one-on-one interviews with a carefully selected group of executives from predominantly *Fortune* 500 firms (including 14 in the *Fortune* 100 in this year's study). The interviewees are screened for an understanding of the buying process, carriers' capabilities, their own needs and the criteria on which their firms' decisions will be based. Nearly 10 potential participants are screened for each one person included in the study.

In the most recent study, the third in the series, we conducted 27 interviews, each lasting between 60 and 90 minutes. Participants were usually their firm's CTO, CIO, or a senior vice president charged with the direct responsibility for purchasing communications services and carrier selection. Compilations of the findings from our first two studies were published in prior *Blackbooks:* See the March 2002 *Blackbook*, "A Tough Nut to Crack: The Hegemony of AT&T and WorldCom in the *Fortune* 1000 Market," and the May 2003 *Blackbook*, "A Tough Nut to Crack II: Oligopoly Returns to the Enterprise Telecom Market."

The State of Enterprise Telecom

Our near-term outlook for the enterprise segment reflects the various cross-currents buffeting the market. On the negative side, providers are facing a slower-than-expected recovery in business demand for long-distance data connectivity, as well as continued pricing pressures for these services. Offsetting these forces have been strong demand for wireless services, encouraging trends relative to enterprises' adoption of wireless data, and the recent M&A activity that is expected to significantly improve the telecom industry's longer-term outlook.

The Key Battleground for the Large Service Providers

Given its superior growth prospects, the enterprise market has become the key battleground for the large telecom service providers. Long-distance carriers AT&T and MCI are keen to protect their positions in this market, which they see as their last stronghold, after retreating from the consumer and small/medium business (SMB) arenas. Meanwhile, the RBOCs, having gained full regulatory relief to offer long-distance services, see nothing but growth opportunities in providing long-distance data services to large enterprises.

It is important to note that not all portions of the enterprise market are subject to conflicts among the service providers. Given their historical monopoly over the local access infrastructure, the RBOCs have always dominated local voice and local data services to enterprises, just as they do in the consumer and SMB markets. And while there have been some changes in recent years, due to unbundling regulations and Voice-over-Internet Protocol (VoIP) technology, we foresee the RBOCs losing no more than five percentage points of market share in enterprise local services over the next five years. (Cable VoIP is expected to be much more prevalent in the consumer and SMB segments than in large enterprise.)

The service providers are battling over long-distance voice and data services to enterprises. These services are integral to enterprises' IT infrastructure, and are much more challenging to provide. Therefore, in our interviews with enterprise telecom buyers, we focus mainly on their long-distance voice and data needs — as well as on wireless, to the extent that it is relevant to the individual buyer.

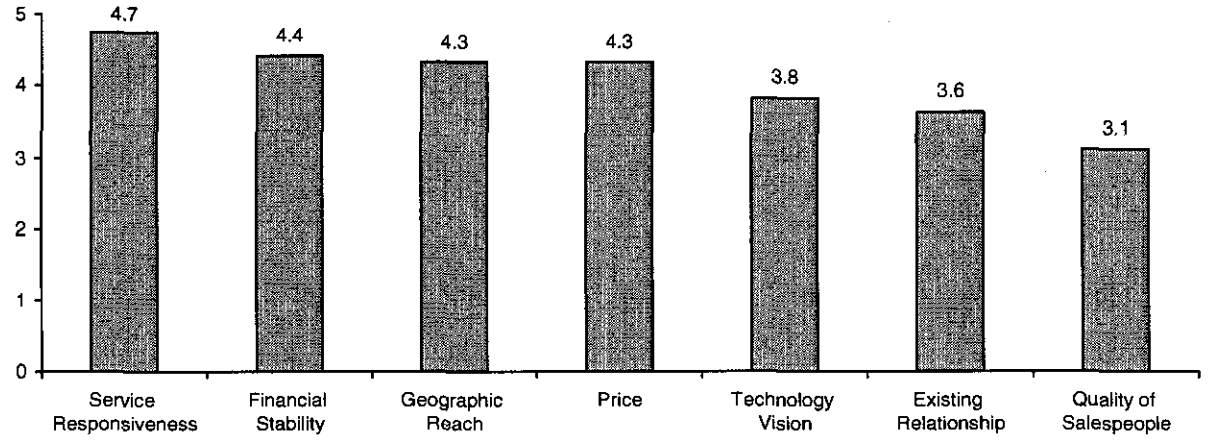
Likewise, in the chapters that follow, where we speak of the carriers' relative capabilities and positioning in the enterprise market, it is generally in the context of long-distance services. We continue, however, to include local voice and data revenues in our market sizing, in order to accurately reflect the total spending of enterprises on telecom services.

Enterprise Requirements Are Demanding and Complex

Telecom buyers repeatedly emphasize the difficulty of finding one service provider that meets all, or even most, of their needs. This is especially true for the largest corporations, many of which need secure, redundant connectivity to international locations. They often have been forced to divide telecom purchases among many providers, each supplying a subset of services to a subset of customer locations.

Enterprise telecom requirements, particularly for long-distance services, are much more stringent than those for consumers and SMB. In terms of the network itself (see Exhibit 4), reach, reliability and security are tantamount — the latter two dictating that the reach should be achieved "on-net" (i.e., on the provider's own network) as much as possible. Service responsiveness is highly valued, because customer needs at the high end of the market rarely fit a standard model and often require custom solutions. Also important are competitive pricing and, given high switching costs, the financial stability of the carrier.

Exhibit 4 Average Ratings[1] for the Importance of Carrier Attributes



1 On a scale ranging from 1 (representing no importance) to 5 (representing highest importance).

Source: Bernstein Enterprise Telecom Decision-Maker Study III.

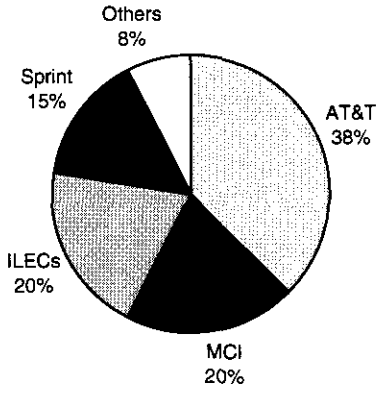
Our studies reveal that the carrier's technology vision is not particularly critical to the buying decision; rather, it is widely viewed as being only a transient differentiator among carriers. Our interviewees commented that they could tell little difference among the technological capabilities of the major service providers.

The ability to integrate wireless services is also not considered very important, as many companies do not even designate a primary wireless provider. However, we expect that this will become an increasingly important differentiator as wireless data becomes integral to corporate business processes.

AT&T and MCI Remain the Driving Forces in the Market

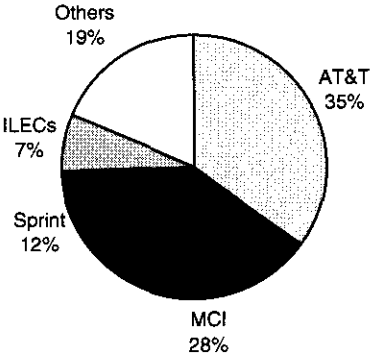
The interviews in our most recent study devoted less time to examining carrier positioning, but many key findings from our 2003 survey were reaffirmed. Specifically, AT&T and MCI were still generally regarded as the only two providers that had the global reach and breadth/flexibility of solutions required to service large multinational corporations. Not surprisingly, these two providers retain the bulk of enterprise market share: They were named as primary providers at 58% of enterprises in our survey for voice services and 63% for data services (see Exhibits 5 and 6).

Exhibit 5 Named Primary Voice Carrier Share



Source: Bernstein Enterprise Telecom Decision-Maker Study III.

Exhibit 6 Named Primary Data Carrier Share



Source: Bernstein Enterprise Telecom Decision-Maker Study III.

Sprint accounted for a good portion of the remainder, with some companies finding Sprint's informal partnership with Equant effective in providing a global reach even beyond AT&T's and MCI's capabilities. However, Sprint's network was perceived as less reliable, and its sales force less experienced, than those of its two larger peers.

RBOCs Continue to Push

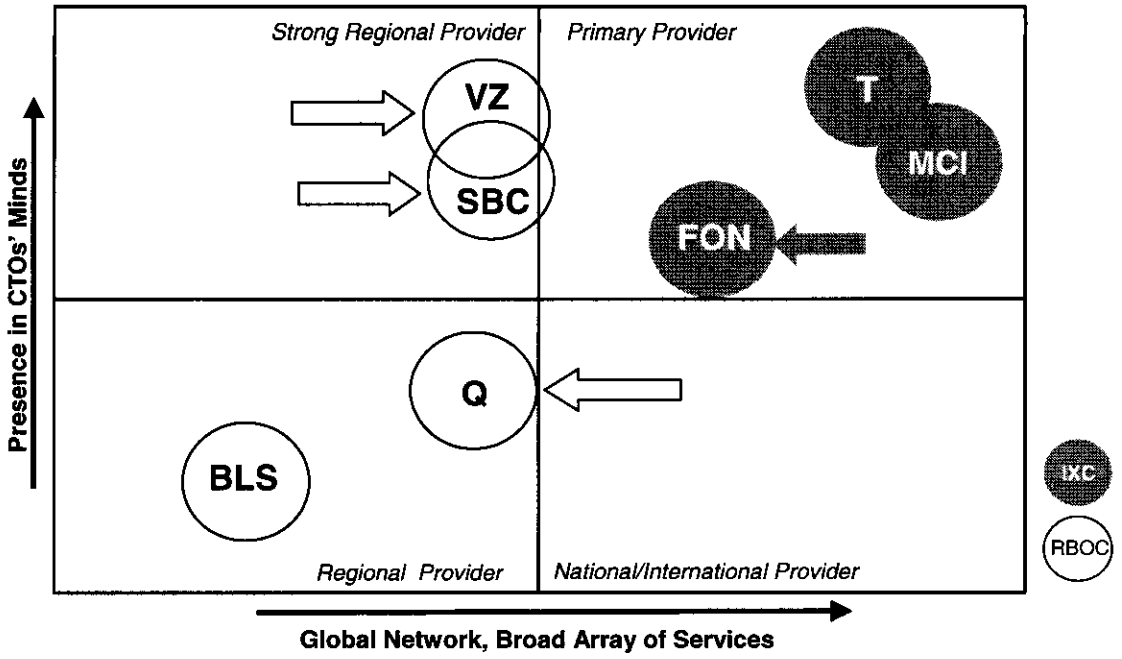
At the time we conducted our 2003 study, the RBOCs were all but missing from enterprise contracts, despite their well-publicized efforts to penetrate the market. Global reach was out of the question for them, and even national reach was regarded as lacking, with most (potential) customers believing they could offer only regional services. As a result, despite the RBOCs' incumbent status in local voice and data services, none of the executives with whom we spoke in 2003 named an RBOC as their primary or secondary provider of long-distance services.

That changed in our latest study: We heard far more acceptance of the Bells' improving capabilities and growing position as second-source suppliers. The RBOCs continue to push their way into the enterprise market for long-distance voice and data services. Not having the network reach, services breadth and sales experience of their more established competitors, but with stronger financial footings, they have used price discounting to gain a seat at the negotiating table.

Over the course of our three enterprise studies, we have seen clear evidence of the RBOCs' steady, if slow, progress. Exhibit 7 provides a graphical representation of the major carriers' positioning, with the arrows indicating how positions have shifted since our 2003 study. Of course, the

combinations of SBC with AT&T and Verizon with MCI will leapfrog the organic entry of at least the two largest Bells into the enterprise space.

Exhibit 7 Perceived Service Provider Positioning and Shifts



Source: Bernstein Enterprise Telecom Decision-Maker Study III.

Wireless Data, VoIP and IP-VPNs Will Likely Drive Most Enterprise Spending Growth

Despite their apparent appetite for advanced services, many enterprises are cautious adopters of new telecom services and technologies. Given that even a brief network outage can be potentially crippling to a company running mission-critical applications on its data or voice network, enterprise telecom buyers tend toward conservatism when it comes to new, unproven technologies. Even when the technology's reliability (in terms of minimizing outages) has been demonstrated or otherwise guaranteed by the carrier, concerns over security are often another significant barrier to adoption.

Return on investment is a central consideration in all cases. The added value of the new technology, or cost savings enabled by it, must be sufficiently high to overcome the initial cost of adoption, which often involves replacing existing equipment and migrating from existing systems.

In our recent study of enterprise telecom buyers, we gauged the level of interest and usage of several specific technologies, including enterprise VoIP, IP virtual private networks (IP-VPNs) and wireless data services. We found a surprising degree of consistency in the attitudes expressed by our respondents in these areas, which we believe exemplify the overall enterprise telecom buying decision with respect to adopting new technologies. Specifically, our respondents were enthusiastic about these services, and most expected to increase their use of them. However, the actual deployment of these services is far less than our respondents' enthusiasm would suggest is appropriate, as adoption tends to be deterred by the factors mentioned above.

Pulling It All Together: Verizon and SBC Well Positioned

The findings from this year's study show the natural evolution of the enterprise market and the expectations of the buyers in that market. We see greater acceptance of the RBOCs as potential suppliers to this market (something three years ago we predicted would take three to four years to develop).

The emphasis has shifted away from the Bells' inability to offer sophisticated data connectivity, their lack of competent sales forces and barriers to switching network providers, in favor of a greater balance among the different decision criteria and provider attributes. In addition, the rising emphasis on wireless capabilities in the enterprise market — concurrent with provider deployments of mobile broadband networks — points to the solid positioning of Verizon Wireless and Cingular.

Valuation Methodology

Our target prices for the Bells are set predominantly using DCF with a CAP-M-based WACC, backtested against a telecom-specific implied growth model. For SBC and Verizon, our current price targets do not reflect any upside from their respective pending mergers (SBC with AT&T, and Verizon with MCI), because we do not believe any such upside will be reflected in these stocks until the mergers get significantly closer to closure and more certainty is available around regulatory concessions. Our target price for AT&T is based on the terms of its merger transaction with SBC.

Risks

Our enterprise market interviews summarized herein represent a qualitative approach to market research, not an explicitly quantitative one. As such, the numbers derived from the research should be used for directional guidance and not as a basis for setting specific forecasts.

Investment Conclusion

We are generally cautious about the U.S. telecom group, suggesting a market-weight. For investors looking for exposure, our top pick is SBC, rated outperform (target price $29), given its solid, dividend-based downside protection, and upside from Cingular and the AT&T merger.

The only two companies in our coverage with questionable longer-term positions in the enterprise market are BellSouth, rated market-perform (target price $29), and Qwest (target price $5), rated outperform. In BellSouth's case, while we see Cingular as well positioned, the form of the enterprise sales relationship between Cingular and AT&T — and to which party the upside will flow — is an unanswered question. Without significant enterprise wireless upside for BellSouth, we see that company as challenged to be more than a provider to midsize companies with only regional needs.

In Qwest's case, we remain watchful of the developing concentration of power within the enterprise market. We see the company as having several different strategic options, though remain unsure of the likelihood of success for any of them, given the pending mergers of SBC with AT&T and Verizon with MCI.

We believe Verizon (target price $40) is increasingly well positioned in the enterprise market, particularly with its purchase of MCI — but are cautious on the stock and rate it market-perform, reflecting our belief that the MCI integration will be difficult and fraught with execution risk, the magnitude of the company's fiber build is not yet fully reflected in investor expectations, and the company's exposure to near-term cable telephony share gains is greater than for the other large Bells.

Sizing the Enterprise Market

One-Fourth of Revenues, One-Half of Growth

Large enterprises currently account for one-fourth of total retail telecom services revenues, but will drive more than one-half of the industry's growth over the next five years. Its superior growth prospects make the enterprise market a key strategic battleground for the major telecom carriers — one that, unlike the consumer market, isn't under attack by cable rivals. The large interexchange carriers (IXCs), specifically AT&T and MCI, have historically dominated, though the RBOCs have made significant inroads over the last three years.

We project healthy revenue expansion of 4.6% annually over the next five years for the enterprise market, but such growth has not always been a foregone conclusion. Over the four years from 2000 to 2004, we estimate the enterprise market *contracted* by 4.2% annually as the overall U.S. economy slowed down. We expect the market to rebound on the heels of renewed economic growth, though recognize such a recovery has been slow to materialize. Nevertheless, we expect 2005 to show a modest 2.4% growth in enterprise revenues, the first increase in five years.

We expect IP data and wireless voice and data services to drive most of the projected growth in the enterprise market — with these services making up for declines in voice revenues. Our market studies over the years have revealed a steady migration from legacy data services to newer IP-based networking. Because of their substitutive nature, however, IP services growth will drive somewhat less than their headline share of gross revenue growth. Our conversations with enterprise telecom buyers also indicate a growing interest in wireless data services, backing up our prediction for 20% annual revenue growth in this area during 2005-10 (albeit from a relatively small base of $4.2 million in estimated 2005 revenues).

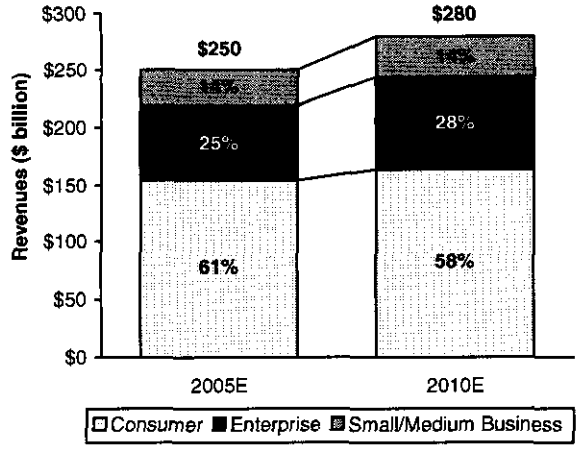
In our analysis and forecast of the enterprise market, we have completely separated wholesale services. Although the wholesale and enterprise market segments are often considered as one by market analysts (sometimes on the justification that wholesale customers — other carriers — are often large enterprises themselves), we believe it is important to distinguish between them, as they are characterized by very different products, competitive dynamics, and growth prospects. We examine the wholesale market in detail in the next chapter.

Dimensioning the Enterprise Market

Over the *last* four years, the fastest-growing area of the U.S. telecommunications services market was the consumer segment, boosted by rapid wireless and broadband growth. Taking over the lead in growth in the *next* five years will be the enterprise segment. As shown in Exhibit 8, we estimate large enterprises in 2005 account for 25% of the total U.S. market for retail telecom services; by 2010, they will be 28% of the total, thanks to a growth rate twice that projected for the overall telecom market.

We expect this growth will coincide with a cyclical recovery in IT spending, supported by improving overall business conditions, including employment growth. The additional share garnered by the enterprise segment will come at the expense of the consumer segment, which will decrease from 61% of the market in 2005 to 58% in 2010.

Exhibit 8 Evolution of U.S. Retail Telecom Services: 2005E-10E



Source: Bernstein estimates and analysis.

The outlook for the consumer segment has become less rosy, in our view, because of the relative maturation of wireless and broadband services and the price pressures in traditional telephony stemming from cable VoIP competition. Over the next five years, we project only 1.2% annual growth in consumer telecom revenues, with voice revenue declines barely offset by growth in wireless and broadband.

The small/medium business (SMB) segment should hold its share at about 14%. We expect the SMB segment will grow at roughly the same rate as the overall telecom market, or 2.4% annually over the next five years.

Although the U.S. economy and business conditions have generally improved, a robust recovery in the enterprise telecom market has been somewhat slower to come. In 2004, we estimate, the enterprise market experienced a net 1.6% decline in revenues due to lax demand as well as price pressures in long-distance voice and data. We continue to look for a meaningful, if delayed, recovery in the demand for telecom services, although the impact on revenues may be muted by persistent price pressure.

For 2005, we expect enterprise revenues to grow a modest 2.4%, driven by increased wireless voice and data usage. Exhibit 9 provides the details of our enterprise market forecast. For reference, Exhibit 10 gives our forecast for overall retail telecom services. Note: VoIP revenues including those for non-telecom carriers are included in these numbers; consumer multichannel video revenues are not included.

Growth Drivers: IP Data, Wireless Voice and Data

We expect wireline data and wireless services to drive growth in the enterprise market, while wireline voice is projected to decline steadily. On the data side, long-distance IP services are expected to grow strongly, with volumes increasing 40-60% per year — which, even with relatively high rates of unit price declines, should support 10-20% annual growth in revenues from these services.

However, IP service growth will drive less-than-proportionate growth in overall data revenues, due to substitution of IP for legacy data services. For example, we believe more than one-half of IP virtual private network (IP-VPN) installations will replace existing frame-relay, ATM and private-line services. With VPN priced lower than legacy services (on a unit basis),

the result is a reduction in overall revenues. This is offset, however, by "greenfield" VPN installations, as well as organic growth in legacy services. Exhibit 11 shows the aggregate growth of long-distance data service revenues projected through 2010.

Exhibit 9 U.S. Enterprise Telecom Services: Revenue Forecast ($ billion)

	2004	2005E	2006E	2007E	2008E	2009E	2010E	CAGR 2000-04	CAGR 2005E-10E
Local Voice	$21.8	$21.3	$20.9	$20.8	$20.6	$20.4	$20.3	(2.6)%	(0.9)%
Long-Distance Voice	10.8	9.1	7.6	6.4	5.5	4.7	4.1	(16.9)	(14.7)
Subtotal: Enterprise Wireline Voice	$32.6	$30.3	$28.6	$27.2	$26.1	$25.1	$24.4	(8.7)%	(4.3)%
Local Data	$5.7	$6.0	$6.6	$6.9	$7.2	$7.5	$7.6	(10.5)%	4.6%
Long-Distance Data	14.4	13.9	14.4	15.4	17.0	18.6	20.2	(0.9)	7.7
Subtotal: Enterprise Wireline Data	$20.1	$19.9	$21.0	$22.3	$24.2	$26.1	$27.7	(4.1)%	6.8%
Wireless Voice	$7.6	$9.3	$10.9	$12.6	$14.1	$15.6	$17.1	23.9%	13.1%
Wireless Data	2.0	4.2	5.9	7.7	9.3	10.1	10.5	105.3	19.9
Subtotal: Enterprise Wireless	$9.6	$13.5	$16.9	$20.3	$23.4	$25.7	$27.6	30.1%	15.4%
Total Enterprise Market	$62.3	$63.7	$66.5	$69.8	$73.7	$76.9	$79.8	(4.2)%	4.6%
Year-Over-Year Change	(1.6)%	2.4%	4.3%	5.0%	5.6%	4.4%	3.7%		

Source: Bernstein estimates and analysis.

Exhibit 10 U.S. Retail Telecom Services: Revenue Forecast ($ billion)

	2004	2005E	2006E	2007E	2008E	2009E	2010E	CAGR 2000-04	CAGR 2005E-10E
Local Voice	$67.2	$64.7	$62.8	$61.8	$61.0	$60.3	$59.7	(3.0)%	(1.6)%
Long-Distance Voice	31.8	26.7	22.5	19.0	16.3	14.1	12.2	(17.2)	(14.4)
Subtotal: Retail Wireline Voice	$99.1	$91.4	$85.2	$80.8	$77.4	$74.4	$71.9	(8.9)%	(4.7)%
Local Data	$19.2	$22.2	$24.8	$26.4	$27.2	$27.5	$27.3	12.5%	4.2%
Long-Distance Data	18.8	18.1	18.8	20.0	21.8	23.5	25.2	0.1	6.9
Subtotal: Retail Wireline Data	$38.0	$40.3	$43.5	$46.3	$49.0	$51.0	$52.5	5.5%	5.4%
Wireless Voice	$100.2	$110.2	$119.0	$125.6	$130.7	$134.6	$138.0	13.7%	4.6%
Wireless Data	4.4	8.6	11.1	13.6	15.5	16.9	17.6	83.6	15.5
Subtotal: Retail Wireless	$104.6	$118.7	$130.1	$139.2	$146.3	$151.6	$155.6	14.8%	5.6%
Total Retail Market	$241.6	$250.5	$258.8	$266.4	$272.6	$276.9	$280.0	0.7%	2.3%
Year-Over-Year Change	1.4%	3.7%	3.3%	2.9%	2.3%	1.6%	1.1%		

Source: Bernstein estimates and analysis.

In wireless services, enterprises accounted for only a small portion of the total market in 2004, at about 9% overall. Many companies today do not even report having a primary wireless service provider — and when they do, often only a small subset of the companies' employees are connected with the service.

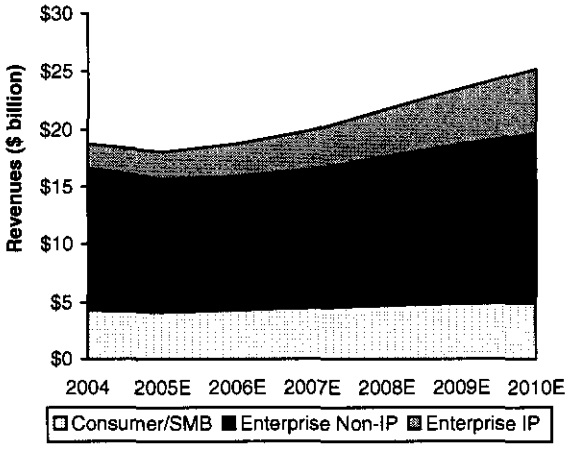
In the subsegment of wireless data, however, enterprises currently account for a much more significant 45% of total revenues, primarily from wireless e-mail (e.g., Blackberry) and Internet access services. Most of the remaining 55% is accounted for by consumer-driven applications, mainly SMS and MMS. (Only a small portion of wireless data revenues today is derived from the SMB segment.) Our view is that revenues from consumer wireless data applications will grow only about 10% annually in the United States, where users have shown much less affinity for such applications than users in Asia and Western Europe. This is a relatively slow growth rate for a fledgling segment of the typically dynamic wireless market.

In contrast, we expect much more rapid growth for enterprise wireless data services, manifested in a projected average annual growth rate of 20% over the next five years. This will be driven by an increasing degree of integration of wireless data applications into basic business processes related to

supply chain management, sales, customer service, and the like. Many of the corporate telecom buyers with whom we spoke confirmed this vision — but at the same time, their visions of the exact applications they would use tended to be vaguer.

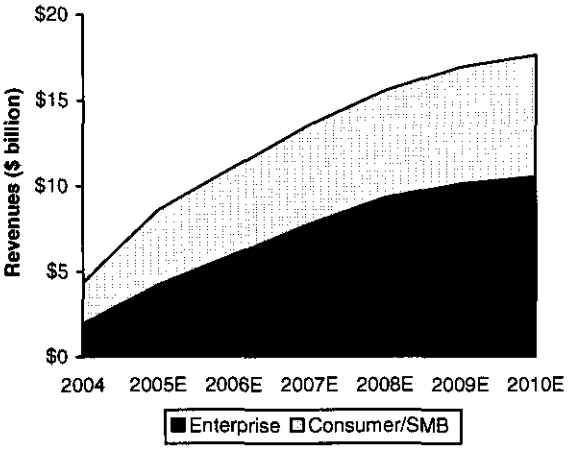
We believe enterprise wireless data usage will grow significantly faster than consumer usage and, as such, will be a critical determinant of whether 3G services in the United States achieve the level of success currently professed by the wireless providers. Exhibit 12 gives our forecast for wireless data services revenues, showing the significance we foresee of enterprise usage in driving the overall wireless data market.

Exhibit 11 Total U.S. Long-Distance Data Growth



Source: Bernstein estimates and analysis.

Exhibit 12 Total U.S. Wireless Data Growth



Source: Bernstein estimates and analysis.

Carrier Market Shares in Enterprise

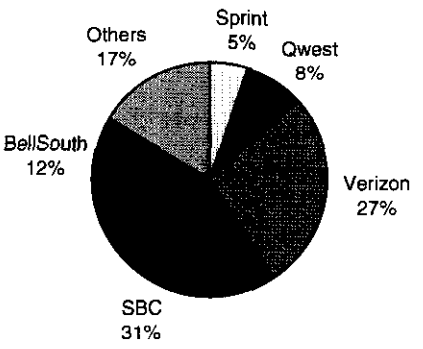
For local voice and local data services, the RBOCs — Verizon, SBC and BellSouth (in the context of the enterprise market, we do not classify Qwest as a traditional RBOC) — dominate in the enterprise market, just as they do in the consumer and SMB markets. This is expected to remain the case over the next five years, because the RBOCs' position in these segments is strongly tied to their ownership of the local-access infrastructure. However, we foresee a small degree of share erosion, particularly in voice, to alternative providers, including those leveraging resale and enterprise VoIP. Between 2005 and 2010, we project the RBOCs' collective share in local services to decline from 70% to 66%, as shown in Exhibits 13 and 14.

In the enterprise long-distance services market, AT&T, MCI and Sprint currently dominate with about 85% share collectively (see Exhibit 15). The RBOCs' efforts to penetrate the market have so far yielded only a small 8% share, though they have made incremental progress.

Given the SBC-AT&T and Verizon-MCI mergers, we see the two leaders maintaining their positions in the market (see Exhibit 16), with MCI gaining some ground on AT&T — partly reflecting an expectation that MCI's operations will become more effective following Verizon's promised investment in the company. The remaining RBOC, BellSouth, is expected to continue on its trajectory of slow long-distance share gains, reaching 6% by 2010. Sprint is seen to lose share as it increasingly focuses on the wireless side of the business, while Qwest largely maintains its status as a lower-cost alternative to its larger long-distance peers.

Exhibit 13 Current Carrier Shares of Local Voice and Data: 2005E

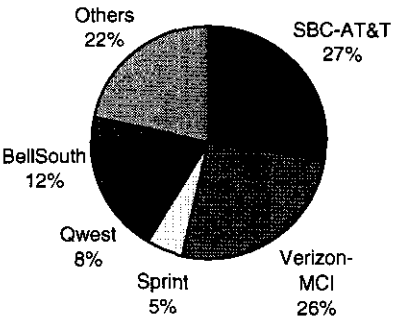
2005E Total = $27.3 Billion



Source: Bernstein estimates and analysis.

Exhibit 14 Projected Carrier Shares of Local Voice and Data: 2010E

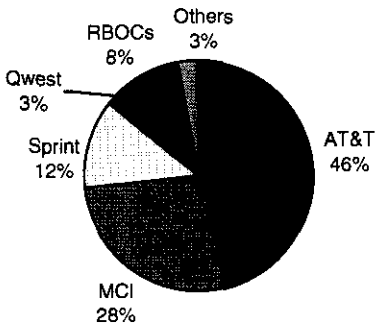
2010E Total = $27.8 Billion



Source: Bernstein estimates and analysis.

Exhibit 15 Current Carrier Shares of Long-Distance Voice and Data: 2005E

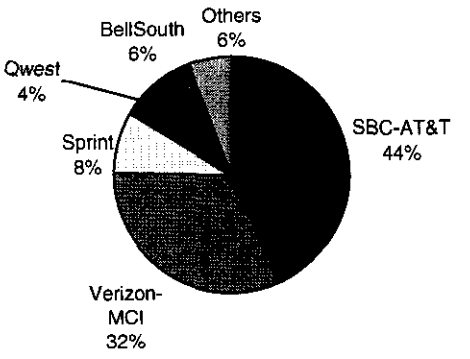
2005E Total = $23.0 Billion



Source: Bernstein estimates and analysis.

Exhibit 16 Projected Carrier Shares of Long-Distance Voice and Data: 2010E

2010E Total = $24.3 Billion



Source: Bernstein estimates and analysis.

Price Pressures Persist

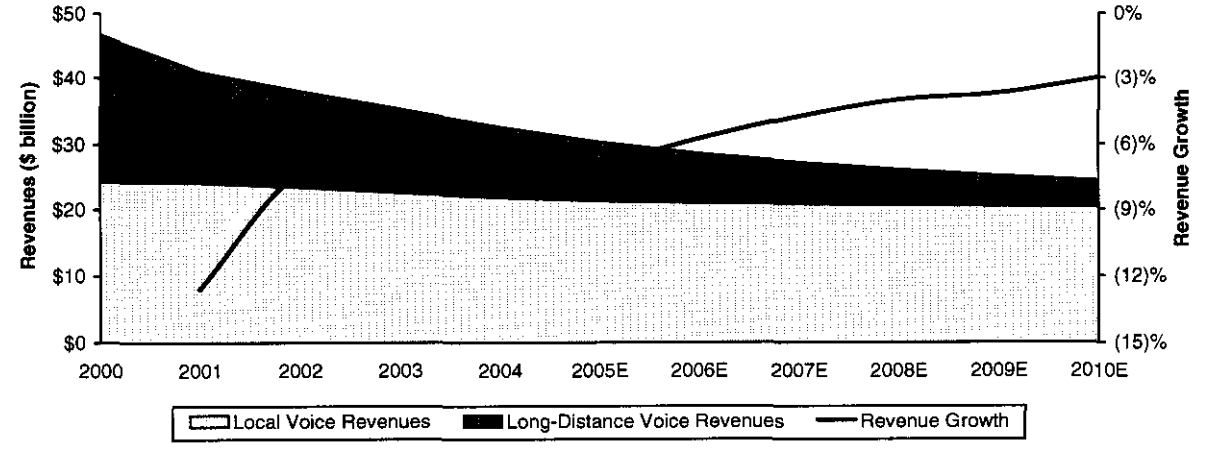
Over the past two years, we have been informally monitoring pricing trends in the enterprise market, looking for signs that price pressure is starting to subside. Unfortunately, we have found few such signs. Pricing continues to decline steadily — leading to our projection that long-distance voice revenues in 2010 will be only 45% of 2005's level (see Exhibit 17).

Many enterprise users expect service providers to soon offer unlimited long-distance voice as part of a service bundle anchored by data services, effectively making long-distance voice pricing "free." We believe service providers and industry followers have largely accepted this fate, and have appropriately discounted the role of traditional long-distance voice in future business plans.

More worrisome are the persistent price pressures in long-distance data, a growth area in terms of demand. Our market analysis suggests unit

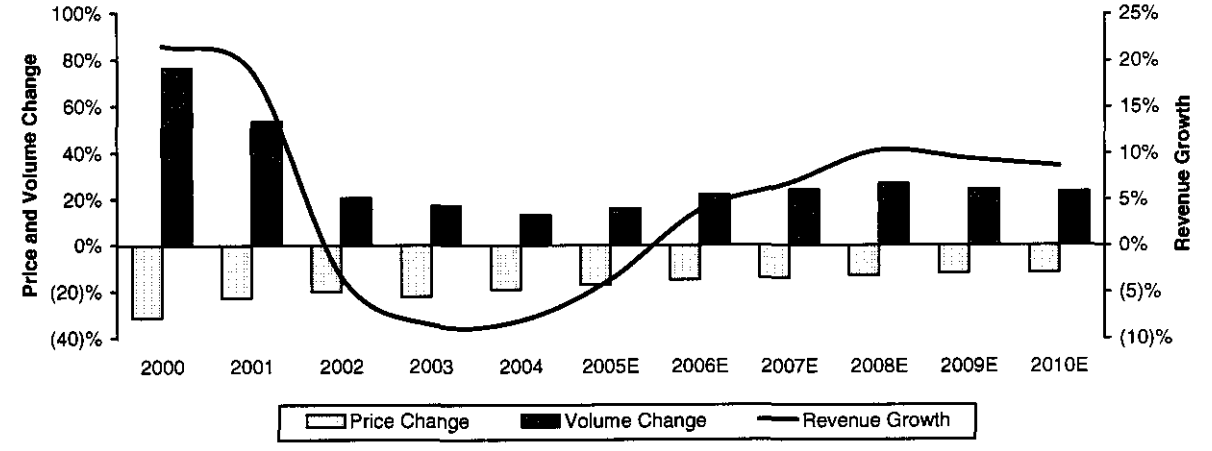
price declines for both IP and non-IP (e.g., frame-relay, ATM, private-line, etc.) data reaccelerated slightly, to more than 20% in 2003, following several years of steady easing. Prices appeared to have declined at close to a 20% rate in 2004, and are on trend for a 16% decline this year. Combined with slowing volume growth, the price drops have resulted in decreases in long-distance data revenues for four straight years — following stellar revenue growth rates in the years preceding 2001 (see Exhibit 18).

Exhibit 17 Enterprise Wireline Voice: Revenue Forecast



Source: Bernstein estimates and analysis.

Exhibit 18 Enterprise Long-Distance Data: Revenue Forecast



Source: Bernstein estimates and analysis.

Though we believe data pricing will continue to fall, we expect the rate of decline to gradually slow over time, continuing the trend started in 2000 (notwithstanding the interruption in 2003); industry consolidation should help stabilize prices as well. We also expect demand growth to tick upward as general economic growth continues. As a result of these factors, we believe revenues from long-distance data services will begin to grow modestly starting in 2006, after the modest contraction this year.

Why Is the Price Trend So Steep in a Market With Relatively Few Players?

Given the relatively high market share concentration — our studies consistently find AT&T, MCI and Sprint provide voice and data services to 70-80% of the enterprises we survey — the intense price pressure observed may be surprising. Usually in industries that exhibit such concentration, the major players are able to exercise a greater degree of price discipline.

Unfortunately, in the telecom industry, price discipline is hindered by two factors: (1) a general lack of differentiation in service offerings and (2) the high-fixed-cost/low-marginal-cost nature of network economics. The first of these takes pricing power away from the service providers, leading prices to trend down toward marginal cost; while the second drives a very low pricing floor due to carriers' efforts to build network scale. The result is the downward spiral in pricing that we continue to witness.

Wholesale Segment Aggravates the Situation

It is important to note the role of wholesale providers, including AT&T, MCI, Sprint and near-pure-play wholesalers like Level 3 and Global Crossing. This segment of the industry exemplifies both factors that erode pricing discussed above. The product, pure bandwidth, is nearly completely undifferentiated. And the costs are almost all fixed in the network infrastructure. In addition, competitive intensity is high, with far more supply than demand. Therefore, wholesale prices suffer from the greatest degree of price pressure, and are declining most rapidly — for some high-capacity-bandwidth products unit prices have declined as much as 30-40% per year for the past half-decade.

Pure-play wholesalers impact pricing in the enterprise market by leasing low-cost bandwidth to nontraditional long-distance providers, including small niche players as well as the RBOCs. These providers are then able to compete with AT&T and MCI (which own their networks) with comparable costs.

The general availability of cheap bandwidth is one of the reasons the RBOCs have been able to enter the enterprise market without significant capital investments or acquisition of an existing long-distance network operator. Using leased wholesale capacity, they are able to piece together their long-haul networks, adding links as necessary to service specific customer demands.

The wholesale telecom services market is explored in more detail in the next chapter.

Sizing the Wholesale Market

Important to Distinguish Between Wholesale and Retail Enterprise

The wholesale segment has long been grouped with the enterprise segment by analysts as well as the carriers themselves, on the grounds that many wholesale customers — usually other carriers — are also large corporations. Although this is technically true, we separate wholesale revenues from retail because the growth prospects and competitive dynamics of the two segments are very different. Therefore, for companies that actively compete in both segments, among them AT&T and Qwest, it is not possible to accurately evaluate their top-line and profitability prospects without considering each segment separately.

Wholesale services do not represent incremental end-user spending, but are nevertheless an integral component of the telecom market. Most large local and long-distance carriers purchase and sell wholesale services, to enable their own service offerings as well as those of other carriers. For example, RBOCs purchase long-distance capacity from IXCs to support their long-distance voice business. At the same time, they sell to the IXCs wholesale "special access" connectivity to complete the IXCs' long-distance circuits. Broadband and wireless providers also rely on wholesale capacity to carry their data and voice traffic.

The wholesale market is critical to a number of smaller players whose business models revolve around reselling services purchased from larger carriers. Included in this group are CLECs, private-label ISPs and VoIP providers.

Wholesale in Context: A $44 Billion Market Declining 7% Annually Through 2010

In aggregate, the wholesale market represents $44 billion of annual service provider revenues, in addition to the $251 billion retail market — meaning that wholesale services contribute approximately 15% of the estimated $295 billion in total telecom service revenues in 2005 (see Exhibit 19). As the retail market grows by $30 billion over the next five years (for a compound annual growth rate of 2.3%), we project the wholesale market will decrease by $13 billion (or at a compound annual rate of (6.9)%) — leading it to be only 10% of our projected total telecom revenues of $311 billion in 2010 (see Exhibit 20).

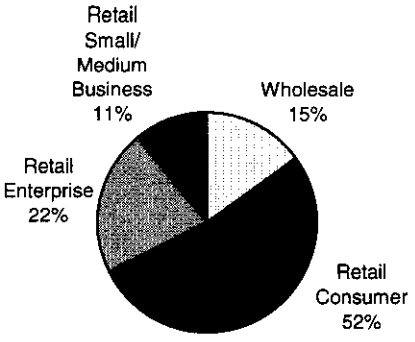
Much of the projected decline will be caused by the SBC-AT&T and Verizon-MCI mergers, both expected to close by early 2006. Each of these transactions will convert a significant portion of the wholesale market into intracompany transfers (as explained later in this chapter).

Breaking Down the Wholesale Market

At a high level, wholesale revenues can be divided into two categories: local and long distance. Wholesale local services are provided by the ILECs (Verizon, SBC, BellSouth, Qwest and others) to other carriers. These services include: access charges paid by IXCs (e.g., AT&T, MCI, Sprint, etc.) to originate and terminate long-distance calls; local private lines used by IXCs and CLECs to transport data or voice traffic from a customer site to the IXC's point-of-presence (also called "special access" lines); local private lines used to connect a wireless network's mobile switching centers to the PSTN (another form of special access); and local access lines leased to CLECs and other carriers, via regulated (e.g., UNE) or negotiated arrangements, for resale to consumers and small businesses.

Exhibit 19 Breakdown of Total U.S. Telecom Market: 2005E

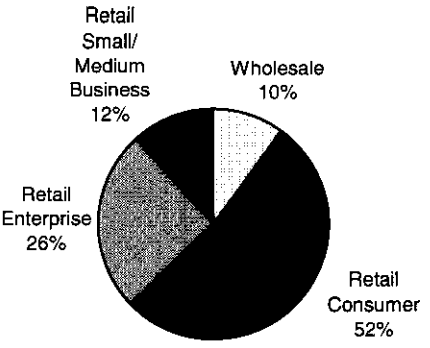
2005E Total = $295 Billion



Source: Bernstein estimates and analysis.

Exhibit 20 Breakdown of Total U.S. Telecom Market: 2010E

2010E Total = $311 Billion



Source: Bernstein estimates and analysis.

In the other category, wholesale long-distance services are provided by the large, established IXCs as well as by smaller, newer networks, such as Level3 and Global Crossing. The dominant products here are long-distance voice capacity to support wireless and alternative voice providers (including VoIP); IP transport for broadband providers; and general bandwidth (including "dark fiber") for other long-distance carriers to complete their networks. Wholesale providers typically also offer associated services, such as collocation (hosting of customer equipment), security and billing.

The division of wholesale services into local and long-distance is convenient because these segments have very different characteristics. The market for wholesale local services, while large, exists mainly because of the ILECs' legacy monopoly over local-access infrastructure. As such, it is governed more by regulatory measures (e.g., interconnect and unbundling rules) than by market forces. The ILECs have almost no competition in providing these services, and other carriers often have little choice but to purchase these services from the ILECs.

In comparison, the markets for wholesale long-distance voice and data services are highly competitive. The established long-haul carriers — AT&T, MCI and Sprint — not only compete with each other, but also with relative upstarts such as Level3, Global Crossing, 360networks, Wiltel and a host of others. The long-distance market is burdened with a capacity glut from the overinvestment of the late 1990s, leading to persistent pricing pressure.

Exhibit 21 provides our detailed forecast of wholesale revenues. Note that, for now, we have not included any wireless revenues within wholesale, as wholesale currently represents an inconsequential portion of the wireless market, serving the few mobile virtual network operators (MVNOs) that have emerged. As the MVNO model proliferates, we expect to see wholesale wireless services become a more significant segment of the market.

As Exhibit 21 shows, we expect wholesale revenues to be roughly unchanged at about $44 billion in 2005, then decline to $31 billion by 2010, with similar trends in local and long-distance services (as both will be impacted by merger activity). On the local side, access revenues will continue

to decline as RBOCs increase their penetration into retail long-distance voice, displacing the IXCs, which have already begun to pull back from the consumer market. RBOCs need not pay access charges to themselves, so at least one-half of such payments (either at the originating or terminating end) will be eliminated. Wholesale recovery revenues (included in local voice) are also projected to decrease, as the projected declines in UNE-P lines will be only partially offset by resale lines. Local data revenues should show more stability, though still declining, from 2006, after initially being impacted by the SBC-AT&T and Verizon-MCI mergers. Exhibit 22 summarizes how revenues from these wholesale local services will change over time.

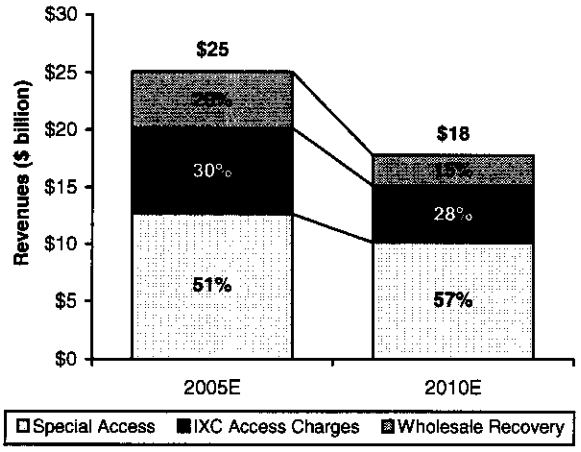
On the long-distance side, demand (in terms of volume) for both wholesale voice and data capacity is expected to increase, with data driven by growing broadband adoption and voice driven by competitive carriers (e.g., cable operators) expanding into the voice market. However, price pressures will limit revenue growth from these services, causing both voice and data revenues to decrease steadily going forward. IP bandwidth should see the least revenue decline, allowing it to grow to 31% of the wholesale long-distance market by 2010, from 24% currently. Exhibit 23 shows the evolution of wholesale long-distance services.

Exhibit 21 U.S. Wholesale Telecom Services: Revenue Forecast ($ billion)

	2004	2005E	2006E	2007E	2008E	2009E	2010E	CAGR 2000-04	CAGR 2005E-10E
Local Voice	$13.0	$12.4	$11.1	$9.9	$9.0	$8.2	$7.6	(6.8)%	(9.3)%
Local Data	12.8	12.7	11.0	10.9	10.7	10.4	10.2	10.1	(4.3)
Subtotal: Wholesale Local	$25.8	$25.1	$22.2	$20.8	$19.7	$18.6	$17.8	0.2%	(6.7)%
Long-Distance Voice	$9.1	$9.2	$8.2	$7.5	$6.7	$6.3	$5.9	28.2%	(8.6)%
Long-Distance Data	9.6	10.2	9.3	8.8	8.3	7.9	7.5	7.5	(5.8)
Subtotal: Wholesale Long Distance	$18.7	$19.4	$17.5	$16.3	$15.1	$14.2	$13.4	15.8%	(7.1)%
Total Wholesale Market	$44.5	$44.4	$39.7	$37.1	$34.7	$32.8	$31.1	5.7%	(6.9)%
Memo: Year-Over-Year Change	0.0%	(0.2)%	(10.7)%	(6.5)%	(6.4)%	(5.6)%	(5.0)%		

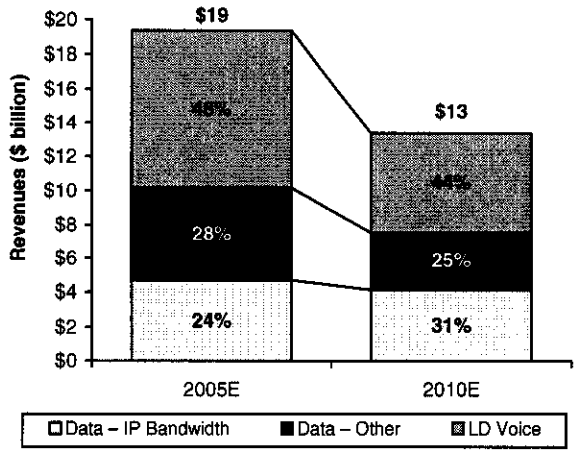
Source: Bernstein estimates and analysis.

Exhibit 22 Evolution of Wholesale Local Services: 2005E-10E



Source: Bernstein estimates and analysis.

Exhibit 23 Evolution of Wholesale Long-Distance Services: 2005E-10E



Source: Bernstein estimates and analysis.

The Market for Wholesale Long-Distance Services

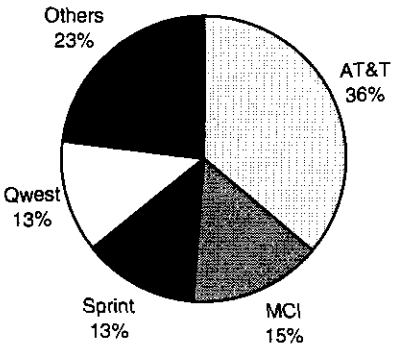
The market for wholesale long-distance services is highly competitive. During the telecom investment bubble of the late 1990s, several upstart carriers spent tens of billions of dollars building high-capacity long-haul networks. With no existing customer relationships, and motivated by the belief that demand for long-haul bandwidth would grow exponentially and endlessly, these carriers converged on the same business model of selling wholesale capacity. Following the accepted wisdom at the time that demand for data bandwidth would far outstrip voice, these carriers focused their networks on data protocols, specifically IP. Only recently did they begin to recognize and pursue wholesale voice as a revenue-growth driver/stabilizer.

This quick history explains the structure of the wholesale long-distance market today. In voice services, AT&T and MCI currently dominate with more than 50% share collectively, according to our estimates. Sprint and Qwest have significant but smaller positions. Other carriers, including the "new" ones, account for an estimated 23% of wholesale long-distance voice revenues.

Looking out to 2010, however, we expect increases in the shares of Sprint and Qwest, primarily at the expense of AT&T and MCI, which by then will be subsumed into SBC and Verizon, respectively (see Exhibits 24 and 25). Although the RBOCs' expansion into long distance has been a major driver of increased demand for wholesale voice, both SBC and Verizon will soon no longer need to purchase these services. We believe the remaining carriers, including BellSouth and smaller ILECs, will be less likely to depend on AT&T and MCI for wholesale services, leading to our projection of share losses for both.

Exhibit 24 Current Carrier Shares of Wholesale Long-Distance Voice: 2005E

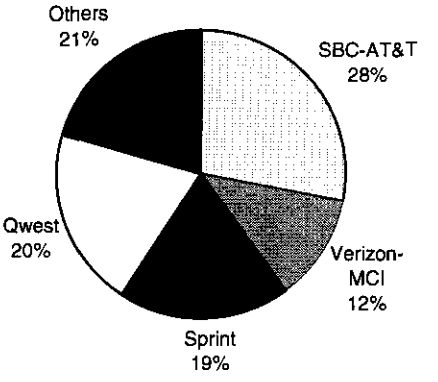
2005E Total = $9.2 Billion



Source: Bernstein estimates and analysis.

Exhibit 25 Projected Carrier Shares of Wholesale Long-Distance Voice: 2010E

2010E Total = $5.9 Billion



Source: Bernstein estimates and analysis.

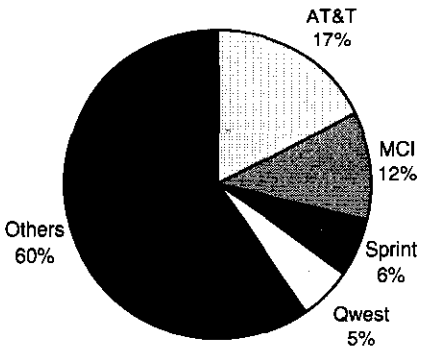
In wholesale long-distance data services, AT&T, Sprint and Qwest currently play significantly smaller roles than they do in voice. MCI, an early entrant with its UUNet IP backbone, has an estimated 12% share of the market, slightly less than its share in wholesale voice. We believe other carriers collectively currently control 60% share — reflecting the fact that their business models emphasize wholesale data.

By 2010, we project that AT&T, Sprint and Qwest will gain share at the expense of the other smaller carriers and, to a smaller extent, MCI (see Ex-

hibits 26 and 27). AT&T is expected to benefit from the continued investment in its IP network and managed services capabilities, preserving its status as a preferred provider in the market even after merging with SBC. Qwest will leverage its relationships with the ILECs, particularly BellSouth, but will see slower growth because these carriers' penetration into long-distance data will be more gradual. Sprint is seen to play the role of arms dealer to the cable MSOs and as a low-cost alternative to AT&T. MCI is expected to lose share at least until Verizon has had time to turn around its operations, which could take until 2007.

Exhibit 26 Current Carrier Shares of Wholesale Long-Distance Data: 2005E

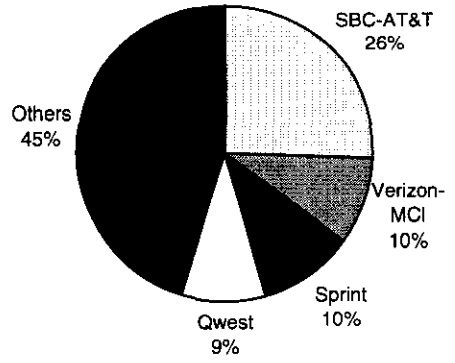
2005E Total = $10.2 Billion



Source: Bernstein estimates and analysis.

Exhibit 27 Projected Carrier Shares of Wholesale Long-Distance Data: 2010E

2010E Total = $7.5 Billion



Source: Bernstein estimates and analysis.

Wholesale Price Declines Are More Rapid Than in Retail

With an excess of supply and minimal product differentiation, the wholesale market suffers from intense price pressures: unit prices for wholesale services decline faster than for similar retail services. Because wholesale contracts are negotiated on a case-by-case basis (other than those for local tariffed services, which are regulated), contract terms and pricing are widely varied and difficult to generalize. However, carriers on both the supply and demand sides report that wholesale voice pricing typically falls at a steady rate of 10-12% per year, while data-price declines regularly exceed 20%. Contract pricing for high-capacity (multi-gigabit) IP bandwidth has been known to fall by 35-40% per year.

Note that these are unit-price declines for the same product. For example, we're comparing pricing for an OC-3 circuit in one year versus the same OC-3 circuit in the previous year. There are also volume discounts for going to higher-bandwidth products. For example, an OC-12 circuit may *cost only 2.5 times as much as an OC-3, even though it offers 4.0 times the* bandwidth.

In any one year, some fraction of wholesale customers will upgrade to higher-speed lines to take advantage of this volume discount, effectively reducing their unit cost. Combining the impact of such volume discounts and like-for-like price declines, the wholesaler's actual revenue received per unit of supplied capacity declines even faster. We believe unit revenues for wholesale IP services have fallen by as much as 45-50% per year in recent years.

In our interviews with carriers, we heard indications that wholesale price declines have begun abating recently. After several years of free-falling prices, carriers today appear more reluctant to offer deep discounts, especially as volume growth (in percentage terms) has slowed. Furthermore, wholesale providers are evolving their service offerings, moving toward a managed services model, whereby they provide not only raw capacity, but also consulting, billing, customer care and other services. Two examples of this are Qwest's relationship with BellSouth and Sprint's relationships with cable MSOs (supporting their VoIP implementations).

Margins Are Thin

The costs associated with a wholesale business are mainly fixed in the network; therefore, profitability hinges on scale and operational efficiency. For a carrier in desperation (and there have been plenty of examples recently), it is all too tempting to price at marginal cost to drive volume. Unfortunately, marginal cost is usually far below average operating cost, resulting in thin, if not negative, operating margins. (As an aside, because the bulk of costs are in depreciation and SG&A, gross margin is often an irrelevant metric in the wholesale market.) Margins do vary across carriers, however, depending on the carrier's operational efficiency and whether the same network also transports the carrier's retail traffic, helping to spread operating costs across a broader base of revenue.

Impact on the Carriers

Among the companies in our coverage, AT&T is the most exposed to the wholesale long-distance voice and data segments, being a major provider in each. In the company's income statement, wholesale is included in, but not broken out from, its Business Services division. We estimate that wholesale services accounted for 23% of Business Services revenues in 2004.

With the ongoing declines in its retail business, AT&T's services mix is increasingly shifting toward wholesale, with two important implications. First, AT&T's revenue trend will differ from what one would infer by looking only at retail services trends. Specifically, AT&T's projected revenues could potentially be understated, because one would fail to recognize that some of the projected revenue losses in retail will be offset by gains in wholesale.

Second, AT&T's profit margins will likely be lower than what one would project from the company's retail activities. This is particularly true because wholesale revenues will substitute for retail, rather than being incremental to them. In addition, AT&T's overall margins will be depressed by the fact that wholesale services contribute less revenue per unit capacity — so less revenue overall will be derived from the same amount of network capacity (and operating cost).

For Qwest, the impact of the wholesale market's evolution will be similar, but somewhat muted compared to AT&T, given Qwest's smaller participation in the market. Wholesale long-distance voice and data contributed 11% of Qwest's total revenues in 2004, and we expect this to grow to about 15% by 2010. Importantly, the company's wholesale *local* services are excluded from this analysis, because those services, being tariffed, do not suffer from the degree of price pressures and margin compression of wholesale long-distance services.

The evolution of the wholesale local-services market will have an immaterial impact on the RBOCs — Verizon, SBC, BellSouth — and the ILEC portion of Qwest. Wholesale local revenues currently represent 16% of these companies' total revenues. We expect the total wholesale local market

to decline by 8% during the next five years, leading to a revenue impact on the Bells of less than 1.3%. Much of the decline in wholesale revenues will be (at least partly) triggered by the RBOCs' own successes on the retail side, winning back share lost to UNE-P competitors and expanding into long-distance voice and data services (the latter decreasing wholesale revenues from access charges and special access data paid to the Bells by competitors). In other words, the net impact of the RBOCs' retail gains and wholesale losses should be positive overall.

Wholesale Revenues Are Eliminated in IXC-ILEC Combinations

Because wholesale revenues are carrier-to-carrier (as opposed to customer/consumer-to-carrier), the size of the wholesale market — and therefore the opportunity for wholesale providers — is sensitive to the structure of the telecom industry. Consolidation, especially IXC-ILEC mergers, will tend to decrease the need for carriers to purchase services from each other, thus reducing wholesale revenues. In contrast, the emergence of new competitors will likely have the opposite effect, as many of the upstarts would need to purchase capacity and connectivity from other carriers to complete their networks and reach their customers.

In a merger between two carriers that have a wholesale relationship with each other, the revenues of the merged entity will be less than the sum of the premerged companies. Wholesale revenues that were previously collected by one merger partner from the other would subsequently be classified as an internal transfer cost, and eliminated from the reported income statement. The result is decreases in reported revenues and costs of goods sold, and an increase in reported profit margins (assuming the wholesale services were profitable). This would be true even before any operational synergies were realized.

As a secondary effect, such a merger could decrease the available wholesale revenues for other carriers. If one merger partner is a potential wholesale supplier to the other (as is the case for both the SBC-AT&T and Verizon-MCI transactions), then each one would likely obtain wholesale services from the other, decreasing their reliance on third-party providers (Wiltel, for example, in the case of SBC-AT&T). This would particularly impact competition in the wholesale long-distance market, while the local market would see less of an effect due to the ILECs' monopoly over local access.